

Blue-banded Bee (top)
Teddy Bear Bee and
Peacock Bee (blm)
on *Eucalyptus* sp.

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PLANNING AND ORGANIZATION MEETINGS

A quarterly meeting is scheduled in order to plan club activities and the magazine.
See BOIC Programme.

CONTACT ADDRESS AND MEMBERSHIP DETAILS

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Membership fees are \$30 for individuals, schools and organizations.

AIMS OF ORGANIZATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

MAGAZINE DEADLINES

If you want to submit an item for publication the following deadlines apply:

March issue – February 1st

June issue – May 1st

September issue – August 1st

December issue – November 1st

ALL MATERIAL IN THIS MAGAZINE IS COPYRIGHT

COVER PAINTING

Solitary bees on *Eucalyptus* sp.– painting by Lois Hughes. Prints available.



FROM THE PRESIDENT

Once again we present the results of an enormous amount of dedicated observation and research and I thank the many people who have contributed to this edition of our magazine. I will single out and give special thanks to one person who does not seek recognition but would rather work quietly to share his observations with others. This is Wesley Jenkinson who has written life history notes on butterfly species for every edition since September 2009. Thank you, Wes.

The club was invited to maintain a display in the Horticultural Section of the Brisbane Exhibition from August 8th to August 17th this year. We have accepted this invitation, as this is a great opportunity to carry our message to the wider community. Your committee is actively planning the display. We are required to have two persons “on duty” at all times and the club will have four entry passes each day. The need for volunteers is great. If you can help for even a half day, I would be very pleased to hear from you.

Considerable work is being done in designing our special 20-year commemorative calendar featuring Lois’s cover paintings to be mailed to each member in September. Already there have been orders for extra copies that will cost around \$10.00 each. Should you require these, perhaps for Christmas gifts, we will need your order by the end of July, as printing will be done in early August.

This is a special message to only one member! On May 14th you paid \$30.00 into the BOIC bank account by direct deposit but omitted your details. Rob would like to hear from you.

Best wishes

Ross

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Getting a Buzz Out of Bees – Lois Hughes

An introduction to our native solitary bees

For the scientifically minded, the following is a general description of bees. Bees belong to the insect order Hymenoptera, sub-order Apocrita, super-family Apoidea, and have three body parts; head, thorax and abdomen.

The mobile head has two large compound eyes and three simple eyes, called ocelli, on top of the head. They have mouthparts designed for cutting or chewing, sucking or lapping, or both and in some species have an elongated and retractable rostrum or proboscis for nectar feeding.

The thorax, made up of the pro-, meso- and metathorax, bears the legs and wings and is connected to the hind section or metasoma. Most bees have branched, electrostatic hairs covering their bodies, which give them a furry appearance. However, some bee species look like wasps and have very little hair at all. Some species have specialised hairs on their hind legs in which they carry pollen. Pollen carrying hairs may be developed on various other areas of the body. Some species have them under the abdomen as well as on the hind legs.

A pair of membranous wings is held together by minute hooks and are well developed for vigorous and long distance flying.

Bees, unlike wasps, are vegetarian and feed their larvae pollen (for protein) and nectar (for carbohydrates) collected from flowers.

They can be described as either social or solitary. The introduced honey bee, *Apis mellifera*, and the honey they produce in their hives, is the social bee we are most familiar with. Another example of social bees is our stingless bees, *Tetragonula* (formerly *Trigona*) which construct spiral-shaped combs and *Austroplebeia*, which construct irregular clusters of spherical brood cells.

The majority of our native bees are solitary in their lifestyle, each caring for their own young, the task often performed by the female alone. They are unique in their choice of nesting sites, and in the following series of articles we will discover many of their intriguing habits.

The Blue-banded Bee, in the genus *Amegilla*, is the first in this series, but more on that later.

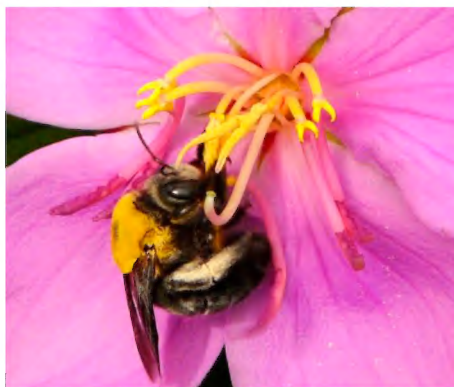


Blue-banded Bee (genus *Amegilla*)



Through Other Eyes – Re-focusing My Vision

Isn't it peculiar how something can be right under your nose and you are only partially aware of it. Oh, in the past I have admired the huge black and yellow Great Carpenter Bee (*Xylocopa virginica*) that bumbled amongst the bright yellow *Senna gaudichaudii* flowers, wings vibrating noisily as they buzzed and darted furiously from flower to flower, dusted with pollen. So quickly did they move they frustrated all my efforts to get more than a fleeting view of them and the artist in me longed for "paintable" detail, however my frustration was about to be transformed into delight.



Great Carpenter Bee (*Xylocopa virginica*)

Playing host to a group of talented photographers, intent on capturing images of awesome insects on our property, I was intrigued when all lenses were focused on a particular group of plants and insects.

The sunlight was dancing off the iridescent blues of the star performers, the shining jewels of the native bee world, the aptly named Peacock or Green Carpenter bees (*Xylocopa bombylans*) (formerly in genus *Lestis*). They were stunning, but why were they hugging each flower they alighted on?



Peacock or Green Carpenter Bee
(*Xylocopa bombylans*)

Subsequent visits by one very dedicated photographer with a passion for our native solitary bees unveiled some of the secrets of this very large and diverse group of hardworking pollinators. Capturing the moment, in sharp detail, Erica's photos revealed what the human eye was unable to see.

Expanding and Enriching My World

On our Mt. Cotton property in Redland City, I have, over the years, replaced the areas we have cleared of lantana and other weeds with butterfly host and nectar plants and bird food and sheltering plants. As we all know lantana is a favoured butterfly nectar source and the small birds feed on the berries and insects and shelter in its thickets. My purpose was to replace these food sources with other less invasive plants. My aim was to bring the butterflies into the garden, enticing them to stay in the vicinity after



depositing their precious cargo of eggs on their host plants, both naturally occurring and purposefully planted.

Some nectar plants have been more successful than others and some dismal failures or so I thought! Another thought has just occurred to me. Does each flower species have a different flavoured nectar or could it contain nutritional substances relevant to the needs of each species of insect e.g. energy for egg production and laying. The flavour of honey is determined by the species of flowers the bees forage from. Manuka honey is known for its beneficial properties. Butterflies test the chemical composition of a plant to determine its suitability as a host plant. Do they also test nectar as well?

Trumpet shaped flowers have proved popular as receptacles for nectar into which a butterfly can unfurl its proboscis to suck up nectar while balancing on the flower rim. Honeyeaters, wings vibrating like hovering Humming Birds, also relish this nectar while Eastern Spinebills and Lewin's Honeyeaters are welcome visitors. Here are some of the most successful nectar producers in our area – Buddleia, Pentas, White Duranta (it doesn't seed prolifically like Geisha Girl which is also popular), Lantana, Justicia, Heliotrope, Verbena (weeds), Snake Plant, Periwinkle and occasionally Jasmine. Pompom flowers such as Lillypillies (Pink Cascade is hugely popular with a wide range of insects), Grey Myrtle, Eucalypts, Rose Apple (it's very susceptible to Myrtle Rust), the Icecream Bean (Inga) as well as Callistemon, occasionally Grevilleas and Cobbler's Pegs. Daisies and herbs are sometimes used as well.

You are probably thinking I have digressed from my original topic, but to my delight I have discovered that native bees are highly attracted to many of the above-mentioned blossoms as well as others which butterflies largely ignore. Cat's Whisker, Guava, Easter Cassia and other Cassia and Senna flowers, tomato, Anise, Hyssop, Cat Nip, Sacred Basil, Marjoram and the hugely popular Motherwort and Darling Pea are all used by bees. So I had inadvertently attracted another interesting group of invertebrates with my butterfly plantings.

One plant which holds no attraction for butterflies but is a real favourite of native solitary bees is the Cigar Bush, the plants mentioned at the start of this article. The small trumpet shaped flowers are rich in nectar but the trumpets are long and face sideways so rendering the nectar inaccessible, or is it?

Erica's photos revealed a secret. The bees which visit this plant have a retractable proboscis which is extended as they target a flower. Hugging the trumpet for support, they then plunge their proboscis into the upper side of the trumpet thereby gaining access to the nectar stored near the base of the flower!

More Questions than Answers!

Another equally attractive solitary bee which spends lots of time foraging amongst the Cigar trumpets is the Blue-banded Bee (*Amegilla* sp.). Its black abdomen is encircled



by shiny aqua blue bands which contrast beautifully with its hairy tan thorax and green eyes. It begins foraging early in the morning and is often the last to leave in the evening. Whilst busily attending potted plants in our old stables, persistent buzzing attracted my attention. It was coming from an abandoned mud-dauber's nest, last season's construction, many of which adorn the walls. The nest was pockmarked with circular holes, exit holes I presume made by last season's emerging wasps. They don't re-use old nests but construct new ones from fresh mud, but something was busy in there! A Blue-banded Bee eventually emerged. This behaviour was repeated many times and at various locations over the coming weeks. So what are they doing in there? Are the Blue-banded's constructing mud brick homes?

Underground Accommodation?

Loud buzzing draws attention to another bee, the Teddy Bear Bee (*Amegilla asaropoda*) tan and very hairy but perhaps with a sting in its tail, so attempted cuddling is inadvisable! This morning I watched three of these bees hovering and then darting into the vibrant yellow Easter Cassia flowers each emerging with a load of pollen. During the warm months of the year these bees often venture inside, noisily investigating nooks and crannies close to the floor around the furniture (much to our dog's annoyance!). I have also observed similar behaviour under the house. It takes patience to discover what they are up to because their hovering continues for a considerable time. One day I was fortunate enough to see one dart into a small hole in the dirt and disappear. Could this be their nest?

Leaf Circles

Who has not been intrigued by the near perfect circles mysteriously cut from our soft-leaved plants? The culprit is the Leaf Cutter Bee (*Megachile* sp.). Were the little, green leafy parcels I inadvertently disturbed from a folded towel left on an outdoor chair the work of this bee?

Don't you just love a mystery? I hope so because it will remain a mystery until, in a future edition of *Metamorphosis Australia* we will continue to explore the secret lives of solitary native bees. Bee patient!



Leaf Cutter Bee (*Megachile* sp.)

I wish to thank Erica Siegel and Corinne Jordan for freely sharing their accumulated and researched knowledge, wisdom, observations and stunning photos for the writing of these articles. As there are no text books freely available it would seem to be an appropriate and opportune time to begin sharing what knowledge we have so that other eyes and ears can observe and tune into this very diverse and industrious group



of valuable pollinators. Together we may discover more of the secret lives of these beautiful jewels of the garden.

Photos Erica Siegel

Blue-banded Bee, *Amegilla* sp.- Erica Siegel

There are over 20 described Blue-banded bees in Australia ranging in size from 8 mm to 18 mm. They are one of three long-tongued bees and known as buzz pollinators.

Blue-banded bees are solitary bees and are found in all states of Australia except Tasmania.

These bees have a sting but are not aggressive.

They have thick reddish brown fur on the thorax and a black abdomen with iridescent blue or whitish, even green or reddish furry stripes. The colours are caused by microscopic diagonal stripes engraved on each hair which reflect light causing these glittering colours.

The males have five stripes and the females four. Their faces have yellow, cream or white markings.

Blue-banded bees forage on a variety of exotic and native flowers such as *Hibbertia scandens*, *Melastoma affine*, tomato, chilli, basil, buddleia, lavender, *Leucophyllum*, abelias and cigar plant (*Cuphea* sp.). They carry the pollen on their hind legs on specialized sets of hairs (termed scopae).

The females build their own nest but are attracted to areas where other females are nesting.

They build their nests in soft mortar, mud bricks or soft sandstone banks in sheltered positions with nests being rather shallow often with side branches. The female digs out the burrow with her jaws after moistening the soil. She creates oval shaped cells lining them with water proof secretions.

Before depositing an egg, a liquid mixture of nectar and pollen is placed in the cell. Each cell is capped after the egg is deposited and when all cells are filled and capped the burrow is closed with a layer of soil. The female then goes in search of another nesting site.

According to JC Cardale (Australian National Insect Collection, Canberra 1993) Blue-banded bees live about 40 days and three generations of bees hatch during a summer. Baby bees take about seven days to hatch and those that do not hatch due to approaching winter, overwinter in their cells as prepupae, emerging in the next spring.

Male Blue-banded bees roost together in small groups at night, out in the open, and hang onto twigs or stems with their mandibles. They vigorously shake their legs and wiggle their abdomen when a new bee arrives to settle for the night. Eventually they all tuck their legs under their bodies to sleep.



After warming up in the morning they go on their daily routine of foraging and finding a female to mate with.

Blue-banded bees can be attracted to your garden by making a mud brick; drill a variety of holes 10-15 mm wide and 25-50 mm deep before the mud brick dries and place it in a sheltered position.

According to JC Cardale (Australian National Insect Collection, Canberra 1993) placing some soil from a Blue-banded Bee nesting site on top of the brick will assist in attracting females to use the provided artificial nest site.

Recent research has shown Blue-banded bees could be valuable pollinators of greenhouse tomatoes.

Reference:

Dollin, Dr. Anne (Australian Native Bee Research Centre) and JC Cardale (Australian National Insect Collection, Canberra)

More photos and information on Blue-banded bees can be found on Aussie Bee website: www.aussiebee.com.au/blue-banded-bee-information.html

Further Reading

<http://australianmuseum.net.au/Bees-Suborder-Apocrita>

<http://animals.pawonation.com/blue-banded-bee-7543.html>

Hogendoorn, K. S., Coventry, S.A. and Keller, M.A. Foraging behaviour of Blue-banded bees, University of Adelaide

<http://hal.archives-ouvertes.fr/docs/00/89/22/41/PDF/hal-00892241.pdf>

<http://museum.wa.gov.au/research/collections/terrestrial-zoology/entomology-insect-collection/entomology-factsheets/native-bees>

<http://www.beesbusiness.com.au/> - Artificial bee homes

<http://permaculturenoosa.com.au> - go to: How to - Instructions for a Bug Hotel

Ed.: Erica has many invertebrate images for sale. Visit her website www.ozbirds-wildlife.com



Blue-banded Bee, female

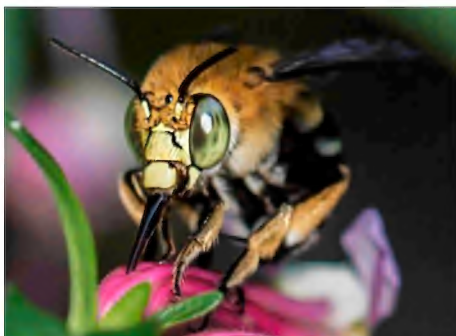


Blue-banded Bee, female,
with tongue extended





Blue-banded Bee, female, showing facial markings



Blue-banded Bee, male (above and above right)
showing facial markings
(right) female, showing extended and open
proboscis



Photos Erica Siegel

PRESIDENT'S REPORT TO AGM 2014

The Butterfly and Other Invertebrates Club was founded in October 1994 so this year we reach the twenty-year milestone of our existence. For almost all of these years John has been Vice President, Rob has managed our financial records as Treasurer, Daphne has served tirelessly as our Magazine Editor and Lois has served as Publicity Officer. Daphne and Rob have worked very efficiently to manage the database of our membership with Daphne having countless contacts from both members and others over membership fees and general enquiries. The success of our old Newsletter and our current Magazine is mostly due to Daphne's patient liaison with authors, her meticulous attention to detail and her skill in combining the articles and images into



each attractive edition. Lois has produced a prodigious range of wonderful artwork over the years and we are often amazed, as she seems to reach a new level with her paintings.

I thank the other committee members Alisha and Richard for their support in the past year.

A handful of Brisbane enthusiasts formed the club in 1994. By 1997 there were thirty members. Currently we have over two hundred members. The majority of these members do not live in the Brisbane area but support the Club through their subscriptions while a number contribute through their expertise or through the submission of articles for publication. This is a vital part of our success.

To mark the completion of twenty years of club activities, each member will receive a complimentary calendar next September. This unique publication will feature thirteen of Lois's paintings printed on A4 sized pages.

I know that quite a number of members give talks on habitat restoration or "bringing back the butterflies" and are active in their local areas. These activities are a vital part of the club's ethos and I thank those who carry out this vital work.

Over the past year we have participated in a number of shows or displays. This has allowed us to communicate with and to inform the wider public through discussion and the sale of books and posters. We have accepted an invitation to participate in the Royal Queensland Show or "Ekka" from August 8th to 17th this year. This is quite a task as we will mount and man a fulltime display in the horticultural pavilion during that period. Volunteers are required!

A new version of the club's website went on line last September. We were able to retain the original background design of our earlier websites but improved its functionality. It is still a work in progress with much potential material to be added.

We look forward to another rewarding year.

Ross Kendall

ITEMS OF INTEREST

***Aristolochia acuminata* and the Richmond Birdwing -**

Garry Sankowsky

For ten years I lived on Mt Tamborine where my wife and I operated the Tamborine Mountain Butterfly Farm. Mt Tamborine is prime Richmond Birdwing country and we had the Birdwings breeding in our garden all the time as well as breeding large numbers for the flight cage and sale of specimens and pupae.

There has been a lot of hype going around claiming that *Aristolochia acuminata* (Tagala Pipevine) is not suitable for this species. In all this time I rarely used



Pararistolochia praevenosa for one simple reason – it is far too slow growing and takes years to develop into a large vine. I can only imagine that the huge vines that are growing on the mountain are many hundreds of years old.

The species I mainly used were *A. acuminata* and an *Aristolochia* species from Rabaul that has huge soft leaves, as big as a dinner plate. It is the host plant of *Ornithoptera urvillianus*. I also used *A. indica* which has naturalised near Darwin.



Pararistolochia praevenosa
Photo Ross Kendall

The problem with the soft leaved species of *Aristolochia* is the situation in which they are grown. When Birdwing eggs are laid on the younger leaves (and this includes Cairns as well as Richmond Birdwings) the leaf reacts to the glue that holds the egg in place which causes it to weep juices onto the egg. These juices then often go mouldy and the resulting mould kills the egg. This is simply the plant fighting back. Because of this Birdwings have evolved the habit of mostly not laying their eggs directly on the host plant but on the leaves of the plant over which the *Aristolochia* is growing. I have seen both *O. richmondia* and *O. euphorion* eggs up to a metre away from the host leaves, and this is in a straight line meaning the tiny larva has to go much further before it finds the plant.

This problem is not limited to *A. acuminata* and other soft leaved species as many eggs laid on the soft

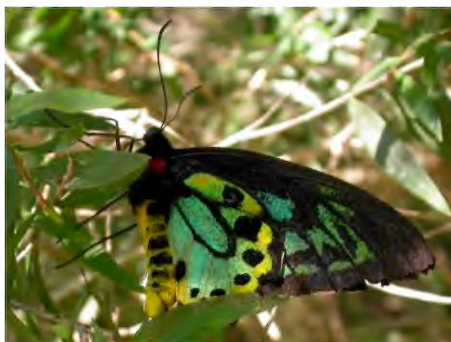
new growth of *P. praevenosa* suffer the same fate. Below is a Cairns Birdwing egg that was laid on *P. praevenosa* and killed by fungus.



Photo Garry Sankowsky

The solution is very simple, you should never grow Birdwing host plants on a trellis/fence in the open as a monoculture. I never recommend trellis growing of *Aristolochia* unless they are harvested very regularly to feed larvae in a laboratory situation. If there are several layers of foliage the vines usually become infected with mealy bug and the leaves excluded from good light die.





Ornithoptera richmondia male



Ornithoptera richmondia female

Photos Ross Kendall

The best way to grow the vines in the garden is to let it climb up through a tree and you will find the Birdwings lay most of their eggs on the tree foliage. The only way you can overcome the problem of a trellis is to plant at least two species of vines, one being something other than *Aristolochia*. A Passion Fruit vine is good as you can get some fruit and the second plant is not wasted. For best results you should have about three times more other plant than *Aristolochia*.

Claims that *O. richmondia* larvae do not develop well on *A. acuminata* are complete rubbish and I would guess that most breeders use nothing else. A local breeder of *O. richmondia* has always used *A. acuminata*. *A. indica* is better than *A. acuminata* for both *O. richmondia* and *O. euphorion* simply because it is more nutritional and the larvae develop to maturity by consuming less than half the amount of foliage. The main problem with *A. indica* is that it is somewhat cold sensitive and while some people in Brisbane have had success with it others have not.

I have even seen a claim that *A. acuminata* kills the pupae of *O. richmondia*. This is even more fanciful – probably a pupa died from a virus and a post-mortem fungus developed. Again if you do not have a monoculture of *Aristolochia* the larvae will not pupate on the host plant. This is also a natural survival technique. Birdwing larvae almost always



Aristolochia acuminata
Photos Dennis Bell



leave the host plant to moult and pupate if the foliage of another plant is nearby. I have seen a moulting Cairns Birdwing larvae three metres from the *Aristolochia*.

By all means plant *P. praevenosa* in the wild to encourage the spread of the Richmond Birdwing but if you want a result in your garden in less than about five years plant *A. acuminata*.

Birdwings and South American Aristolochias

In the seventies we found that the Burleigh Heads National Park was infested with Dutchman's Pipevine *Aristolochia elegans*, a plant toxic to the Birdwing larvae. Moves were made at the time to get the Parks people to undertake an eradication program but to no avail. I assume the problem still exists. I have found that if a Birdwing larva finds the flower of *A. elegans* it will continue to search for flowers and can actually survive on these. Near Mt Maroon and in the Goodnight Scrub, where there is a massive *A. elegans* problem in a these dry vine scrubs, Clearwing Swallowtail (*Cressida cressida*) larvae survive on the seedlings and are quite prolific there.

I have been doing some experiments with *A. odoratissima* and have found that Cairns Birdwing larvae can survive on the flowers, seedlings and coppice shoots (when a big vine is cut off low down). This plant has infested some coastal rainforests in north Queensland and spreads just as fast as *A. elegans*. Even though hundreds if not thousands of Birdwing eggs are wasted on these exotic vines the butterfly still survives in these localities. In Burleigh Heads *P. praevenosa* is very common and enough larvae find these vines to keep the population going. Of course they would do much better if the *A. elegans* vines were exterminated.

Life history notes on the Short-tailed Line-blue, *Prosotas felderi* (Murray, 1874) Lepidoptera: Lycaenidae - Wesley Jenkinson



Short-tailed Line-blue, *Prosotas felderi*, female

This small, beautifully coloured endemic butterfly previously also known as the Small-tailed or Felder's Line-blue is encountered from Miriam Vale (De Baar and Hockey, in Braby 2000) along the coastal and subcoastal regions, including the Great Dividing Range in Queensland southwards into New South Wales. This species occurs in a wide variety of habitats including subtropical, littoral and dry rainforest, dry vine scrub, open forest and woodland. It can be also found in suburban gardens in south-eastern Queensland where the host plants are growing.



Adult flight is fast and they typically settle on outer foliage of trees, shrubs and low increasing herbs where they bask in sunshine. Both sexes are readily attracted to a wide range of small native and introduced flowers. While feeding, the wings remain closed and occasionally the hindwings are slightly alternated up and down. During extremely hot days the adults can be observed imbibing moisture from the ground. The males are territorial and quickly chase away other males and other small lycaenids flying through their territory and they do not appear to show hilltopping behaviour.

The sexes can be most easily determined by the upperside coloration with the male being dull lilac and the female having bright blue metallic scales with black and dull white markings along the hindwing subterminal area.

Within Queensland, the adults show some wing marking variation and seasonal differences. While the male upperside shows little variation in the tone of the lilac, the



Female with long hindwing tails

female upperside shows significant variation in the extent of the metallic blue scaling. In comparison to female 'winter' specimens, many 'summer' specimens have the blue scales much reduced or virtually absent. The underside markings of both sexes also show seasonal variation, particularly winter specimens showing a much reduced black subterminal spot and darker brown ground colour. Although the hindwing tail is almost absent in the male, some individual females have longer hindwing tails than others (as female pictured at left).

Within the known distribution range, the adults could be confused with several small lycaenids particularly *P. dubiosa* and *Nacaduba berenice*. In comparison to *P. felderi*, *P. dubiosa* lacks a short tail on the hindwing at vein CuA2, the male forewings are generally more rounded and the bands on the underside are usually less defined. *N. berenice* is usually larger in size and has a much longer tail on the hindwing at vein CuA2.



***Prosotas felderi* (Short-tailed Line-blue) 'Winter' form**

Images left to right: male, female, male underside, female underside





Prosotas felderi (Short-tailed Line-blue) 'Summer' form
 Images left to right: male, female, male underside, female underside

Average wingspans for the pictured adult specimens are: males 20mm and females 22mm. Larvae feed on flower buds, flowers and occasionally soft fresh leaf buds of plants in several families including Sapindaceae, Mimosaceae and Proteaceae.

Ovipositing females typically fly slowly throughout the host tree branches and settle on fresh flower buds or leaf buds in a sheltered position. They typically walk around for a short period searching for a suitable 'site'. During ovipositing, the wings may be slightly open with the hindwings slightly alternating up and down. On warm to hot sunny days I have observed egg laying between mid morning and mid afternoon and during winter around midday at a temperature of 18 degrees Celsius.

In June 2008, an egg was collected and raised to an adult in captivity on Brisbane Wattle (*Acacia fimbriata*).



Freshly laid egg

This very tiny freshly laid egg was pale green when laid, later changing to white, mandarin shaped, approximately 0.4 mm wide x 0.3 mm high, smooth with very fine pitting.

After the first instar larva emerged the eggshell was not consumed. The highly camouflaged larva was observed feeding openly during the day on fresh flower buds of the host tree. In natural conditions the larvae are sometimes attended by small black ants.

This larva attained a length of 11mm and completed 5 instars as pictured.



1st instar larva



2nd instar larva



3rd instar larva



4th instar larva



5th instar larva



The pupa, measuring 7mm in length was attached with silk by the cremaster and a central girdle. A larva previously raised on a Tuckeroo tree (*Cupaniopsis anacardioides*) was located between two leaves of the host plant.



Pupa (image on *Cupaniopsis anacardioides*)



Short-tailed Line-blue, *Prosotas felderi*, male

Egg duration was 6 days, larval duration was 38 days while pupal duration was 18 days.

Within the new boundary of the Scenic Rim Regional Shire south of Brisbane it is locally common. I have records of the adults being present during all months, being less numerous during November and December. At this location there could possibly be three or four generations per year.

References:

- Braby, M.F. 2000. *Butterflies of Australia – Their Identification, Biology and Distribution*. vol 2. CSIRO Publishing, Melbourne.
- Moss, J.T. 2010. *Butterfly Host Plants of south-east Queensland and northern New South Wales*. 3rd edition, BOIC.
- Photos Wesley Jenkinson

Unusual Egg Laying Strategies of Some Lepidoptera -

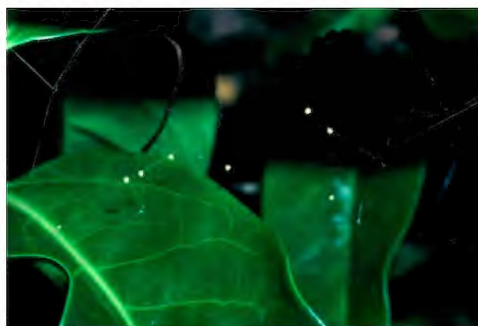
Garry Sankowsky

Anyone who has observed Birdwings laying eggs has probably wondered “When is she actually going to lay an egg?” It is a bit like watching grass grow. What I think she is doing is mapping the location of the Aristolochia vine amongst the foliage of the plants over which the vine is scrambling. This of course would mean that the butterfly has some sort of intelligence, and I am sure they have. I have been breeding butterflies for more than forty years and observing them for longer than that and have noticed that females soon learn what their host plant looks like. Beginners test every plant when they get near the host plant but experienced ones go straight to it or to something that looks very similar. For instance if the host plant has red new growth they will zip around testing all the plants that match.



Birdwings usually lay their eggs from 30 to 50 cm from the vine but at times up to 1 m or even more. I have never observed these eggs hatching to see how many tiny larvae actually find the plant. Who has the time? This laying away from the vine is a good survival strategy because the eggs will then not be accidentally eaten by the other larvae. For Birdwings it is double insurance as most *Aristolochia* vines react to the glue on the egg and exude sap that encourages mould to grow, so killing the egg.

When my wife and I had the butterfly farm at Mt Tamborine I noticed Australian Rustic (*Cupha prosope*) butterflies often laid their eggs in spider webs that were on the host plant. These were mostly webs that were not occupied by spiders but not always so. When the larvae hatch they drop on a silken thread till they hit the plant then crawl up to the new growth to start feeding.



Eggs of *Cupha prosope* in spider web

As well as in spider web they also lay on dead twigs of the plant and on dead leaves on the ground around the base of the plant.

The Australian Vagrant (*Vagrans egista*) has identical laying habits and seems to lay even more eggs at ground level than the Rustic does.



Australian Vagrant feeling for spider web to lay on



The image on the far left shows a female feeling for the web and the small image immediately to the left shows the egg laid on the web.

As well as laying on the web and off the plant the larvae of both the Rustic and Vagrant often use their own web to hang from at night. This probably protects them from roaming predators.





The adjacent image shows Australian Vagrant eggs laid beneath a small Xylosma plant. Neither the Rustic nor the Vagrant lay on the new growth as the larvae of both these species can eat only the very soft new growth of the plant and would be eaten by the other larger larvae.



Australian Fritillary eggs laid on small stones near the Violet plant.

When I was breeding Fritillary butterflies (*Argyreus hyperbius*) at Tolga I noticed they often laid their eggs on the ground beside the Violet, as in the image above.

The prize goes to the Zodiac Moth for the most way-out egg laying habits. In the late sixties we used to come to north Queensland butterfly hunting each year in about May and stay with friends at McDonnell Creek (near Babinda). At that time the host of the Zodiac Moth was not known and we were always searching for larvae. One year we observed a



Australian Vagrant larva at night hanging from silk thread.



female laying eggs on a *Nephrolepis* fern. This is a robust fern that often forms large colonies in the rainforest. We thought we had finally cracked it and collected eggs and the fern. When the eggs hatched the larvae were not interested in the fern and spent five days racing around the container till they finally died.

The Zodiac host plant in this area is *Omphalea queenslandica*, a huge vine that spreads across the canopy of the rainforest. The stem of the vine was probably growing near the ferns but the nearest foliage could have been twenty metres or more above, and of course the tiny larvae would have to find this stem first before they could climb to the foliage.

In our garden at Tolga we have a tree of *Omphalea celata* growing in an open area with a few small plants underneath. The Zodiac Moths that come to this plant lay most of their eggs on the small plants that grow underneath.



The above is a typical batch of Zodiac Moth eggs. The image on the right is a wide view of a batch laid on a seedling *Homalanthus* which was growing under the *Omphalea*.

The following image shows the layout of the *Omphalea* tree and the seedlings growing underneath. From my observations very few of the larvae ever find the host plant. Sometimes there are six to ten batches hatching but the majority die without ever getting to the *Omphalea*. From time to time the female will lay single eggs on the host plant and then the survival rate is very high.





Like the Rustic and Vagrant they also lay in spider webs.

The eggs pictured below were laid on a spider web stretching between a branch of the Omphalea tree and the ground.



Zodiac Moths

Photos Garry Sankowsky



What Moth Is That? – Peter Hendry

While it sounds like the title of a tome illustrated by Neville Cayley, it is in fact a question I am often asked. Since I joined BOIC, thinking I would catch up on my youthful interest in butterflies, I have become fascinated with their cousins the moths. For some reason this has led to me being regarded as the resident expert. This is far from true, for an estimated number of 22,000 Australian species, it would take a lifetime to become an expert and I only have a few years experience behind me.

Our president, Ross, has asked me to put down on paper how I would go about identifying a moth. First up, I must confess to knowing some real experts with whom to confer but that is a privilege I do not take lightly, so instead of being an annoyance to anyone, I enjoy the challenge of trying to find out on my own. Besides how else can one learn?

An abbreviated classification of moths shows us they belong to the insect order Lepidoptera which is then divided into super families, families, subfamilies, in some cases tribes, then genera, species and sometimes subspecies. The Lepidoptera contains both butterflies and moths, the butterflies constituting just 6 families.

Getting started: First it would be nice to place the moth in question to family. To this end the book *A Guide To Australian Moths* by Paul Zborowski and Ted Edwards is recommended. This book covers 65 of the 85 odd families of Australian moths including all the major ones. Another great reference is Ian Common's *Moths of Australia*, now out of print, though available as an E-Book. With a little work you should soon be able to recognize members of families such as the large Emperor Moths (Saturniidae) or Hawk Moths (Sphingidae).

Next: Once you believe you know what family your specimen belongs to you need something to compare it to. To that end the web now plays a major part with many sites full of images for comparison. The most reliable being that by CSIRO Ecosystem Sciences - Australian Moths Online <http://www1.ala.org.au/gallery2/main.php>. However the most complete site is the Canadian Lepidoptera Barcode of Life: Australia http://www.lepbarcoding.org/australia/progress_reports.php?region=1&lvl=order&type=Lepidoptera, though the quality of the images is much poorer. Other sites of note are, Caterpillars (and Butterflies and Moths) of Australia by Don Herbison-Evans & Stella Crossley <http://lepidoptera.butterflyhouse.com.au/>, Donald Hobern's Flicker pages <http://www.flickr.com/photos/dhobern/collections/72157607366497058/>, Buck Richardsons's moth identification pages http://www.leapfroggoz.com.au/LeapFrogOz/Moth_Identification.html and the Atlas of Living Australia site <http://www.ala.org.au/> From here all you can do is look through the family you believe your moth belongs to. It becomes a matter of experience, soon some moths will become immediately



recognizable as belonging to a certain family even subfamily or genus which will cut your search time.

Problems with images: It must be noted that using images is not the best way to identify moths. Often the best identifying part may be the markings on the hind wing which may not be exposed. Some images can show false colours, though colour is generally not reliable due to many species occurring in varying colour forms. Size is another problem. A good macro lens can produce an image of a very small moth that looks like a monster. The wings of moths in the Noctuidae are mostly rather thicker or denser than those of the Geometridae. This can be hard to tell from an image. Other more esoteric aspects, like wing venation, spurs on the legs and palps may not be visible.

Traps: There are many traps along the way, not all web sites are correct, so compare your moth with as many images as possible from as many sites as have it. There are many similar looking moths, sometimes in the same genus, sometimes in a completely different family. There are still many moths with no images to compare and others are not even named, so the best you may be able to do is place it to family or genus.

Distribution: It may be of some help to check the distribution, if you have identified a moth from northern New South Wales that has only previously been recorded from north-west Western Australia, your identification is likely to be wrong. The Barcode of Life and Atlas of Living Australia websites along with Ian Common's *Moths of Australia* are your best bet for obtaining a distribution. Note that in many cases these distributions are only from a few samples and may not be reliable. I have had a positive identification put on a moth, located eight hundred kilometers south of its previous recorded location.

More help: Thanks to the internet many of the original descriptions can now be found on line. The biodiversity heritage library website, <http://biodiversitylibrary.org/>, has amassed a huge collection of natural history works from several institutions throughout the world. The *Checklist of the Lepidoptera of Australia* 1996, Nielsen, Edwards and Rangsi, is of immense help here as it gives the author of each species and the year it was named which can be compared against a list of literature to find the publication, and even the page number, it was named in. Without a copy of the "Checklist", the biodiversity heritage library website can be searched directly by species name, though the current name of many species, is not that which they were named under. The Atlas of Living Australia web site includes links to many of the original books and journals but is still limited in the number of species it covers. The problem with many of the original descriptions is their limited description and the fact they may be in Latin, French, German or even ancient German script. All of which can be worked around by websites that help with translations, though limited due to the scientific language used. There are even websites that will help with that ancient German script but your effort may only be rewarded with a description that



reads, black wings with white spots. If you spend time searching the original descriptions you soon realize which authors present a useful description that will help with your pursuit.

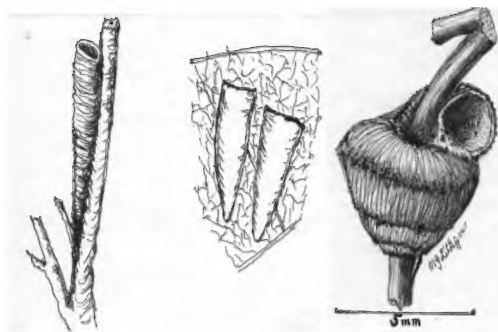
If all else fails: You can join The BowerBird Website, <http://www.bowerbird.org.au>, a citizen science website that allows you to upload your image and have it identified by someone in the know.



Kelvyn Dunn (a member from Victoria) and Alan Hyman (of Bundanoon) spent an afternoon in Morton National Park (Bundanoon section) in December 2013 for a spot of butterfly watching. Alan has recorded 56 species in the local area and on that visit to Echo Point a *Trapezites phigalioides* was seen which added another to his tally! Kelvyn's sighting of the above skipper brings Bundanoon one species closer to Stephen Brown's total of 65 for Mt. Gibraltar, 25 km to the north-east! The photo was taken at the Currabunda Wetland, just inside the town precincts, after our visit to the Park.

Photos Kelvyn Dunn

Tube Spittle Bugs – Ross Kendall



Publication of the story of Tube Spittle Bugs in our 70th edition of September 2013, prompted our long-time member and gifted artist Grace Lithgow to send copies of drawings she made in the 1990's. These drawings accompanied a 1996 article in "Urimbirra" which is the newsletter of the Chinchilla Field Naturalists Club and I thank Grace for allowing us to reproduce them here.



NEW HOST PLANT RECORD

***Hymenia perspectalis* (Hübner, 1796) possible new host plant-**

Peter Hendry

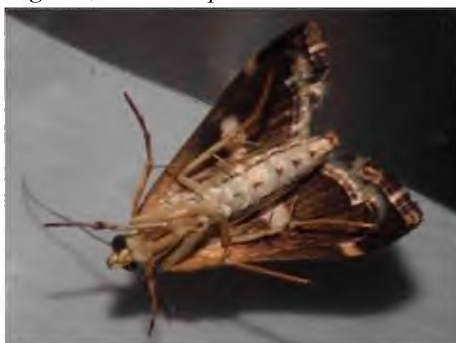
I received the following, with the accompanying images from Glenn Leiper

"Hi Peter,

I was at a friend's place at Capalaba yesterday and she's finishing off landscaping her new place. All native plants of various sorts. One plant, a salt bush of some sort (I'll have to go to Neilsens Nursery to find out what it is), is getting quickly stripped by caterpillars. We looked hard but couldn't see any. But when we touched some of the branches, a cloud of small moths appeared.

They're only around 10 mm from wing tip to wing tip, maybe 12 mm at very most if I stretched the wings out. I brought one home in a zip-lock bag, and got a couple of poor shots tonight. Thought it might be of interest if you knew what it was, and then I can let you know the host plant (if that's of any interest?).

Regards, Glenn Leiper."



Hymenia perspectalis – under



Hymenia perspectalis – upper

Recognizing the moth as a member of the Crambidae family I was able to supply Glenn with a name, *Hymenia perspectalis* (Hübner, 1796). Glenn replied with the host plant and the following information. "*The plant that the moth was using as a host plant is Rhagodia spinescens. It's a saltbush found out on the Darling Downs. There are other Rhagodia species throughout Qld, and one species in the south-east Rhagodia hastata. There's a good chance the moth might use other plants in the saltbush family (Chenopodiaceae) as hosts too.*"

A check in Common (1990) showed Glenn's premonition to be correct. Known as the beet webworm *H. perspectalis* is a pest of beetroot and silver beet, both Chenopodiaceae. Common, lists another Chenopodiaceae, *Chenopodium macrospermum*, as well as the following host plants, cockscomb (*Celosia*) and



Amaranthus both (Amaranthaceae) and the introduced weed *Trianthema portulacastrum* (Aizoaceae).

Common, gives the distribution for *H. perspectalis* as the warmer areas of the world and in Australia over most of the Continent, although it is much more common north of Perth in the west and north of Sydney in the east.

I have searched the web but found no record of *H. perspectalis* feeding on salt bush, so I believe Glenn's record to be a new host plant record.

Reference:

Common, I.F.B. 1990. *Moths of Australia*, Melb Univ Press.

Photos Glenn Leiper

EXCURSION REPORT

Club Excursion to Aub Podlich's Property at Obum Obum -

Ross Kendall

On February 1st and 2nd, the oft-postponed (due to dry weather) Club excursion to Aub's patch of vine scrub finally occurred. Our host met us at his picnic area near a small dam - GPS location 27° 54' 48" S 152° 38' 46" E - and led visitors along tracks through the scrub.

What impressed me was the great age of many of the trees and vines. A list of the plants of the area compiled by Aub and members of the Fassifern Field Naturalists over many years is attached. While the area had yet to be blessed with rain after the prolonged dry spell we still recorded 14 butterfly species on the wing. A list of all recorded butterflies is also attached.



Ancient Corky Milk Vine (*Secamone elliptica*) – Photo Ross Kendall

Aub has written: "*Our 43 acre Obum Scrub on Obum Obum Hill (a name meaning "hard stone") is a low-growing remnant of the once vast Fassifern Scrub. Because it is based on volcanic rock, softwood species (Peanut Tree, Crows Ash, Foambark, Scrub Wilga, etc.) predominate, with numerous vines and a scattering of Brigalow. It has never been cleared, but has been logged and has suffered greatly from 120 years of cattle and now exotic vines such as asparagus, cat's claw, madeira, and siratro. Early European settlers here were required to clear the scrubs in order to secure full title to their land. Nevertheless some, notably the Germans, left a few acres standing on each farm to be used as a resource, hence the fragments that remain. Despite its degraded state, like all the remaining fragments of Fassifern and Dugandan Scrubs, it is a valuable but rare ecosystem, habitat in our case for 54 butterfly species (our favourite*



is the Four-barred Swordtail), hundreds of moth species, 135 species of birds and about 15 species of frog.



Bitter Bark (*Alstonia constricta*)
Photo Marie-Louise Johnson

Under the previous tree-clearing laws, most of the Fassifern Scrubs were protected as an endangered ecosystem. Under the present State Government the laws have changed to allow landowners to clear without a permit, (which means without the new \$2,500 fee) unless rare plants are found in the scrub. On the whole, Fassifern people do protect their scrubs, and predictably will continue to do so. Where a landowner wants to raze a scrub, you can be sure there won't be too many rare trees "found". (The best known "special" tree in the Fassifern Scrubs is the Boonah Tuckeroo (*Cupaniopsis tomentella*) classified as 'vulnerable' and only found in this district. Our scrub has at least 200 specimens of them."

On Saturday afternoon, we were joined by members of the Fassifern Field Naturalists Club who enjoyed an evening barbecue. They were particularly interested in the setting up and operation by Wes Jenkinson

and Richard Zietek of UV lights above white sheets. A good range of moths arrived but beetle visitors were in short supply. Wes has supplied us with a combined list of over 100 moth species from 17 families from a similar "light trap" in December 2013 and that on February 1st. As this is quite lengthy and would take up several pages if published here, we will be happy to send a copy to any reader who wants one.



Norm Jenkinson, Wes Jenkinson and Marie-Louise
at the light sheet - Photo Barry Jahncke

I thank Aub sincerely for his generous hospitality and assistance and must congratulate and thank Wes for the

enormous task of identifying all those moths and sending images. I also thank Barry Jahncke and Marie-Louise Johnson for their photos.



Plants of Obum

TREES AND SHRUBS

Abutilon auritum

Abutilon oxycarpum

Acacia concurrens

Acacia fasciculifera - Rosewood Wattle

Acacia harpophylla - Brigalow

Acacia maidenii - Black Wattle

Acacia salicina - Sally Wattle

Acalypha eremorum

Acronychia pauciflora - Soft Acronychia

Alchornia ilicifolia - Native Holly

Alphitonia excelsa - Soapwood/Red Ash

Alectryon conatus

Alectryon diversifolius - Scrub Boonaree

Alectryon tomentosus - Hairy Alectryon

Alstonia constricta - Bitter Bark

Alyxia ruscifolia - Chain Fruit

Aphananthe philippinensis - Rough-leaved

Elm

Atalaya salicifolia - Brush Whitewood

Brachychiton discolor - Lacebark

Brachychiton rupestris - Bottle Tree

Bridelia leichhardtii - Small-leaved Brush

Ironbark

Bursaria incana - Prickly Pine

Capparis arborea - Native Pomegranate

Capparis sarmentosa

Carissa ovata - Currant/Sloe Bush

Cassia tomentella - Velvet Cassia

Croton insularis - Silver Croton

Cupaniopsis parvifolia - Small-leaved

Tuckeroo

Cupaniopsis tomentella - Boonah Tuckeroo

Cyclophyllum coprosmoides - Coast

Canthium

Dendrocnide photinophylla - Shiny-leaved

Stinger

Denhamia pittosporoides - Veiny Denhamia

Diosporos fasciculosa - Grey Ebony

Diospyros geminata - Queensland Ebony

Dodonaea viscosa - Sticky Hopbush

Drypetes deplanchei - Yellow Tulip

Elaeodendron australe - Red Olive Plum

Elattystachys xylocarpa - White Tamarind

Ehretia membranifolia - Koda

Erythrina vespertilio - Batswing Coral

Everistia vacciniifolia var. *nervosa* -

Small-leaved Canthium

Excoecaria dallachyana - Brush Poison

Tree

Exocarpus latifolius - Broad-leaved Cherry

Eucalyptus crebra - Narrow-leaved

Ironbark

Eucalyptus melanophloia - Silver-leaved

Ironbark

Eucalyptus tereticornis - Qld Blue Gum

Ficus obliqua - Small-leaved Fig

Ficus platypoda - Rock Fig

Flindersia australis - Crows Ash

Flindersia collina - Leopard Ash

Geijera salicifolia var. *latifolia* -

Broad-leaved Scrub Wilga

Gossia bidwillii - Pythonwood

Grewia latifolia - Dogs Balls

Jagera pseudorhus - Foam bark

Mallotus claoxylodes - Green Kamala

Mallotus philippensis - Red Kamala

Maytenus bilocularis - Orange bark

Maytenus disperma

Melia azedarach - White Cedar

Micromelum minutum - Lime Berry

Myrsine variabile - Muttonwood

Notalea microcarpa - Velvet Mock-Olive

Owenia venosa - Rose Apple

Pavetta australiensis - Butterfly Bush

Pentaceras austral - Bastard Crows Ash

Petalostygma pubescens - Quinine Tree



<p><i>Pittosporum angustifolium</i> - Weeping Pittosporum/Native Apricot</p> <p><i>Pittosporum revolutum</i> -Yellow Pittosporum</p> <p><i>Pittosporum rhombifolium</i> - Diamond-leaved Pittosporum</p> <p><i>Pittosporum viscidum</i> - Black-fruited Thornbush</p> <p><i>Pouteria cotinifolia</i> - Small-leaved Coondoo</p> <p><i>Pouteria pohlmammiana</i> -Yellow Boxwood</p> <p><i>Psydrax odorata forma buxifolia</i> - Stiff Canthium</p> <p><i>Psydrax odorata forma odorata</i> - Shiny-leaved/Scented Canthium</p> <p><i>Senna gaudichaudii</i> - Climbing Senna</p> <p><i>Siphonodon australis</i> - Ivorywood</p> <p><i>Solanum stelligerum</i> - Star Nightshade</p> <p><i>Spartothamnella juncia</i> - Square Stemmed Broom</p> <p><i>Sterculia quadrifida</i> - Peanut Tree</p> <p><i>Trema tomentosa</i> var <i>viridis</i> -Native Peach</p> <p><i>Turraea pubescens</i> - Native Witch Hazel</p> <p><i>Vitex lignum-vitae</i> - Satinwood – Premna</p> <p><i>Zanthoxylum brachyacanthum</i> - Thorny Yellowwood</p> <p>VINES/SCRAMBLERS</p> <p><i>Austrosteensia blackii</i> - Blood Vine</p> <p><i>Cudrania cochiniensis</i> - Cockspur</p> <p><i>Cayratia acris</i> - Hairy Water Vine</p> <p><i>Clamatocissus opaca</i> - syn. <i>Cissus opaca</i></p> <p><i>Eustrephus latifolius</i> - Wombat Berry</p> <p><i>Geitonoplesium cymosum</i> -Scrambling Lily</p> <p><i>Hoya australis</i> - Hoya</p> <p><i>Jasminum didymium</i> - Native Jasmine</p> <p><i>Jasminum simplicifolium</i> - Native Jasmine</p> <p><i>Malaisia (Trophis) scandens</i> -Burney Vine</p>	<p><i>Pandorea pandorana</i> - Wonga Vine</p> <p><i>Melodurum leichhardtii</i> - Zig Zag Vine</p> <p><i>Secamone elliptica</i> - Corky Vine</p> <p><i>Tinospora smilacina</i> - (Heart-shaped leaves, red-orange fruit, poison)</p> <p>GRASSES, SEDGES, ETC</p> <p><i>Ancistrachne uncinulata</i> - Hookey Grass</p> <p><i>Gymnostachys anceps</i> - Settler's Flax</p> <p><i>Juncus usitatus</i> - Common Rush</p> <p><i>Lomandra longifolia</i> - Matrush</p> <p><i>Oplismenus aemulus</i> - Creeping Shade Grass</p> <p><i>Stipa ramocissima</i></p> <p><i>Typha orientalis</i> - Bullrush</p> <p>HERBS, WILDFLOWERS, ORCHIDS</p> <p><i>Dendrobium teretifolium</i> - Pencil Orchid</p> <p><i>Dockrilla linguiformis</i> - Tick Orchid</p> <p><i>Tropilis aemula</i> (syn. <i>Dendrobium aemulum</i>) - Ironbark Orchid</p> <p><i>Einadia trigonos</i> ssp <i>stellulata</i> - Saltbush</p> <p><i>Mentha diemenica</i> - Native Mint</p> <p><i>Plumbago zeylanica</i> - Native Plumbago</p> <p><i>Pseuderanthemum variabile</i> - Love Flower</p> <p><i>Wahlenbergia gracilis</i> - Blue Bell</p> <p>FERNS</p> <p><i>Adiantum aethiopicum</i> - Maidenhair</p> <p><i>Azolla pinnata</i> - Duckweed</p> <p><i>Cheilanthes sieberi</i> - Rock Fern</p> <p><i>Pellaea paradoxa</i></p> <p><i>Pyrrosia rupestris</i> - Rock Felt Fern</p> <p>MISTLETOE</p> <p><i>Amyema congener</i> ssp <i>congener</i> on <i>Geijera salicifolia</i></p> <p>EXOTICS/PEST SPECIES</p> <p><i>Anredera cordifolia</i> - Madeira Vine</p> <p><i>Asparagus africanus</i> (3 species)</p> <p><i>Baccharis halimifolia</i> - Groundsel</p>
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<p> <i>Bidens pilosa</i> - Cobbler Pegs <i>Book-leaf Pine</i> <i>Bougainvillea</i> - Bougainvillea <i>Bryophyllum</i> - Mother of Millions <i>Celtis</i> - Chinese Elm <i>Eucalyptus torelliana</i> - Cadaghi Fireweed Green Cestrum Jacaranda <i>Lantana camara</i> Creeping Lantana <i>Leucena</i> </p> <p>-----</p> <p>Obum butterflies - * denotes butterflies sighted in February 2014</p> <p> Australian Admiral (<i>Vanessa itea</i>) Banded Grass-skipper (<i>Toxidia parvulus</i>) Black-ringed Ochre (<i>Trapezites petalia</i>) Blue Tiger (<i>Tirumala hamata</i>) * Blue Triangle (<i>Graphium sarpedon</i>) Bright Cornelian (<i>Deudorix diovis</i>) Brown Ringlet (<i>Hypocysta metirius</i>) Caper Gull (<i>Cepora perimale</i>) Caper White (<i>Belenois java</i>) Chalk White (<i>Elodina parthia</i>)* Chequered Swallowtail (<i>Papilio demoleus</i>) Clearwing Swallowtail (<i>Cressida cressida</i>) Common Aeroplane (<i>Phaedyra shepherdi</i>)* Common Albatros (<i>Appias paulina</i>)* Common Brown (<i>Heteronympha merope</i>) Common Crow (<i>Euploea core</i>) * Common Eggfly (<i>Hypolimnas bolina</i>) Common Grass Blue (<i>Zizina labradus</i>)* Common Grass Yellow (<i>Eurema hecabe</i>) Common Migrant (<i>Catopsilia pyranthe</i>) Dark Cerulean (<i>Jamides phaseli</i>) Dingy Grass-skipper (<i>Toxidia peron</i>) Dingy Ringlet (<i>Hypocysta pseudirius</i>) Evening Brown (<i>Melanitis leda</i>) </p>	<p> <i>Macfadyena unguis-cati</i> - Cats Claw Ragweed <i>Salvia coccinea</i> - Red Salvia Scotch Thistle <i>Schinus molle</i> - Pepperina <i>Solanum</i> sp. - Wild Tobacco <i>Solanum braziliensis</i> <i>Xanthium spinosum</i> - Bathurst Burr Zinnia </p> <p> Introduced grasses, many, incl. Rhodes Grass, Paspalum, Green Panic, African Pigeon Grass, Fodder Tree, in shed area </p> <p>-----</p> <p> Four-barred Swordtail (<i>Protographium leosthenes</i>) * Fuscous Swallowtail (<i>Papilio fuscus</i>) Glasswing (<i>Acraea andromacha</i>) Hairy Line-blue (<i>Erysichton lineata</i>) Lemon Migrant (<i>Catopsilia pomona</i>) Lesser Wanderer (<i>Danaus chrysippus petilia</i>)* Meadow Argus (<i>Junonia villida</i>) Monarch (<i>Danaus plexippus</i>)* Orange Ringlet (<i>Hypocysta adiante</i>) Orchard Swallowtail (<i>Papilio aegaeus</i>)* Pale Triangle (<i>Graphium eurypylus</i>) Pale-orange Darter (<i>Telicota colon</i>) Pink Grass-yellow (<i>Eurema herla</i>) Plumbago Blue (<i>Leptotes plinius</i>) Saltbush Blue (<i>Theclinesstes serpentata</i>) Scarlet Jezebel (<i>Delias argenthona</i>) Short-tailed Line-blue (<i>Prosotas felderi</i>)* Small Grass Yellow (<i>Eurema smilax</i>) Small Green-banded Blue (<i>Psychonotis caelius</i>) Small Purple Line-blue (<i>Prosotas dubiosa</i>) Tailed Emperor (<i>Polyura sempronius</i>) Tailed Pea-blue (<i>Lampides boeticus</i>) Yellow Migrant (<i>Catopsilia gorgophone</i>)* Yellow-spotted Jezebel (<i>Delias nysa</i>) </p>
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Moths photographed at Obum Obum



Amerila serica



Capusa senilis



Cleora illustraria



Digama marmorea



Thalatha guttalis



Radinocera maculosus



Agamana sarmentosa



Achaea janata



Donuca orbigera



Grammoes sp. nr. *diagamma*



Bastilla sp?



Cardamyla *carinentalis*



Cardamyla didymalis



Theretra clotho



Acosmeryx anceus

Photos Wesley Jenkinson



LETTERS

Hi Daphne,

Thought the members of BOIC would like an update on my investigation into the National Geographic BUGS magazines with bugs in Perspex, that has been on sale in newsagents for many months. As you know I give positive feedback where possible, as with the book review on "Bugs of the Ocean" by Kerry Swanson. Kerry explained in the Introduction that the book was about microscopic life in the ocean and the word "bugs" did not refer to the scientific definition of "insects with biting and sucking mouthparts" but to the more general view of "tiny living things that move around".

I would like to be able to give a similar positive review of the National Geographic magazine series called "Real-Life Bugs & Insects" but after an investigation I have found that it is just a money making enterprise with many errors in the magazines, according to one of their own staff members. She points out to issue 17 and 18 as examples and states that now these 16-page issues, selling at \$12.95 per copy, are up to issue 87. We became suspicious after Issue 13, which was not the correct bug in perspex, and decided to call it quits after spending \$200. I wanted something for students.

Issue 8 was titled Spectacular Cicadas but the bug in perspex was a Chinese Lantern Bug from a different Superfamily. Their website is based in the UK but perhaps the collecting is done in China. By the time they reached Issue 23 even the staff of the local newsagency said "We know a mosquito when we see one and this looks more like a beetle". If anyone else has been caught out by this series I would be interested to hear your feedback, since all of the subject matter is Arthropoda and most are from the Insecta or Arachnida.

Regards,
Dennis - dennistafe@yahoo.com

Erratum: - *Peter Hendry*

In the article The genus *Grammodes* (Lepidoptera: Noctuidae; Catocalinae) published in *Metamorphosis Australia*, Issue 62 (September 2011), pp. 19-21, the name *G. comma* should read *G. cooma*.

I am indebted to Don Herbison-Evans for pointing out my error.

Captured in Flight!

After visiting a friend's four acre property here in Toowoomba, there was a pleasant surprise waiting for me when I returned to my car.

Attached to the white paintwork of our Volkswagon was a Longhorn beetle, which I duly caught and placed into a plastic container. Next day, when inspecting the beetle,



it was obvious that this specimen was not happy being imprisoned as it was chewing a hole in the lid! I placed the beetle into our freezer for several minutes so I could photograph it without it taking flight (so I thought) (Fig. 1). Yes! It required more time in the freezer, which I gave it.

Several photos later (Fig. 2) the specimen was given a painless death, and sent to Dr. Adam Slipinski at Echo Systems Sciences in Canberra for identification. Thanks to Adam he identified the Coleoptera as a species of *Acalolepta*. Ron May
Photos Ron May

Fig. 1

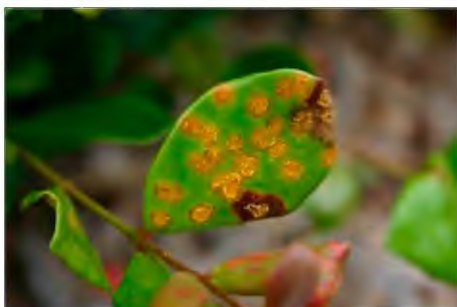


Fig. 2



Ed.: There is a question about bees and myrtle rust in the “You Asked” section and I asked IndigiScapes if they had an image which I could include. They obligingly did so and also sent the following note which I thought would be of interest.

“Good afternoon Daphne,



Please find attached photographs of Myrtle Rust as requested. Strangely enough we were just commenting a few weeks back that we’ve not seen very much of it this year, probably due to the drier summer we had this year. It really seems to thrive in the wet and warm conditions, like most fungal diseases.

Please note that it is considered to be well established in south-east Queensland

now and you are now under no legal obligation to report or control it. That said, it is a good idea to control it if you have persistent infections as these can become the source of future infections in your garden. Unfortunately the best control is often the removal of the host plant if the infection is severe, as some species are particularly susceptible and the fungicide rotation required to control is not without its safety issues and biological impacts.



For further information on species that are affected by Myrtle Rust, I'd recommend checking the Qld Government fact sheet:

<http://www.business.qld.gov.au/industry/agriculture/land-management/health-pests-weeds-diseases/weeds-and-diseases/identify-myrtle-rust/plants-affected-myrtle-rust>

I hope this is of some help, please feel free to give me a call should you need to know more.

Kind regards,

Travis Green

Extension Officer | Community Bushcare

Environment & Education | Redland City Council"

Photo courtesy of IndigiScapes

YOU ASKED



Q. The thing in the attached photos was found on a dead twig in a gum tree. Is it a case or bagmoth? It was found on my property in the Southern Highlands of NSW, SSE of Canberra at about 840m above sea level. It is about 20mm in length and I'm now keeping it in "captivity" to see what happens.

Cheers, *John Mansfield*

Q. Strangely, I observed European Honey bees as well as some unidentified native bees very busily collecting Myrtle Rust from the leaves of a badly affected tree.



Could bees be spreading it? Is it a suitable food or pollen substitute for feeding their young? Does this only occur if there is a shortage of pollen due to dry weather as was the case during January 2014? In the past I had observed bees collecting Pollard (a finely milled wheat product) from the storage drums we kept our horse feed in. They were persistent and it became difficult to avoid incorporating them into the mixed feed,

an unpleasant surprise for an unsuspecting horse!



Also, is there any common connection between the Great Carpenter bee, the Green Carpenter bee, the Teddy Bear bee and the Blue-banded bee? *Lois Hughes*

Photo courtesy of IndigiScapes

A Honeybees are known to collect it as are other insects and rusts are highly transportable. The most common dispersal mechanism is via wind but they may also attract bees who work the spores on leaves. The spores can also be spread via contaminated clothing, infected plant material and insect movement. It is probably stored as a source of protein to feed young bees (brood) but I can find no literature to support this theory.

Honeybees are known to collect alternative substances as a substitute for propolis (bee glue), nectar and pollen. Some of the more newsworthy include wet paint and road tar, as a substitute for propolis. A blue coloured confectionary waste was substituted for nectar. A beekeeper in France found blue honey in his hive and traced it back to a confectionary manufacturing plant disposal bin. So it is most likely rusts are collected as a pollen substitute. I once kept bees in a water treatment plant (read sewerage!) apparently they were very attracted to the peas and carrots.... I had some of the biggest healthiest bees I have ever seen, say no more!

To answer your second question - Yes they do share a common connection in that they are all "Buzz Pollinators" All four species mentioned in "Getting a Buzz" vigorously vibrate their flight muscles to produce sound waves which cause the anthers of certain species of flower to release their pollen.

<http://australianmuseum.net.au/image/Great-Carpenter-Bee-sonication-Corinne-Jordan/#sthash.0a6E2LXf.dpuf>

Corinne Jordan

Hi Daphne.

I've attached a photo of an interesting weevil found on a *Pomaderris* species near Proston last week.

A small group of us "plant nuts" were exploring the roadside remnants of the area on deep red soil, probably of basaltic origin.

Maurie Tucker was the one with the keen eye who spotted it, and I managed to get a couple of quick shots before it flew off.



I didn't realise their flight was that good.

Regards, *Glenn Leiper*

Ed.: Can anyone provide an identification?





← Q. Here's another curious insect to ponder over. A beetle in a fairisle jumper (!) except Adam Slipinski, CSIRO's beetle expert, doesn't know what it is. Do you? Cheers and thanks, *John Mansfield*

Q. Was wondering if *Lepidozmia peroffskyana* has been listed as a host plant for the Cycad blue butterfly? I have done a web search and looked through all my books but I can not see it listed. Last year they laid on my small plant I have at home but did not feed. This year they laid and proceeded to feed on the newest leaf material, I tried

looking for pupae but couldn't find any. I have a photo of the leaf that had the larvae on it but it was taken a couple of weeks after the larvae left but you can still see the eaten leaf segments. If anyone has any information related to this it would be great to hear. I also posted a similar post on the Facebook page to see if anyone else has heard as well. Thank you *Mark Korner*

ITEMS OF INTEREST (CONTD.)

Plague Soldier Beetles (*Chauliognathus lugubris*)

Revisited – *Ross Kendall*

In early January this year, while visiting the Tenterfield area in northern NSW, I noticed hundreds of green and gold beetles on Mt MacKenzie (29° 05' 03" S, 151° 58' 04" E). Later that day, I observed the same beetles at Basket Swamp (28° 53' 44" S, 152° 09' 58" E). The beetles were clustered on the leaves of Eucalypts in their tens of thousands.

Reproduced below is an article from the BOIC Newsletter (# 13 published in June 1999).



“Soldier Beetle:

Around Christmas last year we noticed masses of small beetles clinging together in



clumps all over several bushes and a couple of trees. Almost like a swarm of bees, they were hanging like fruit from every twig. This infestation gradually tapered off until by the end of January they were no longer to be found. These creatures, about 15 millimetres long and narrow, just over 3 mm. wide, had dark olive wing-cases, an orange body and black heads.

After much searching, an illustration of these creatures was found, naming them Plague Soldier Beetles. Their appearance occurred about three weeks after a severe bushfire in the district (Ravensbourne) and it may be possible that the stimulus of the fire caused them all to appear simultaneously. After many enquiries amongst the locals, some long-term residents of the area seemed to remember seeing them, but many years ago. Somewhere towards the end of May I started to see what seemed like small black grubs on the ground over a considerable area, but by and large not too far from where the beetles were seen. Not linking the two events at first, I was nonetheless intrigued to see that some, which were on a meat-ants nest, were totally ignored by the ants. They all looked freshly dead, but on reflection, may have just been lying "doggo".

I have seen them in more and more areas since then, up to 1 kilometre away. Some I collected nearly two weeks ago had reduced a freshly-fallen leaf to a skeleton in a couple of hours. These I showed to John Moss, who immediately searched his literature on beetles and it appears that these are definitely the larval form of those Soldier Beetles.

From the Family Cantharidae; the larva are said to be carnivorous, but not a lot is known about their life cycle. Perhaps they are omnivorous? Why did they appear so suddenly? Hundreds of thousands of adults, and now, probably millions of young (about 500 or more were collected in less than one square metre). What are their predators? Did they fly into this area or were they there all along? So conspicuous and yet nobody had seen them for many years! Yet another of Nature's many mysteries.

Jim Johnston

.....

As Jim comments, I searched the books and the Internet following the appearance of these beetles. My experience had been with a related family, the Lycidae (Flower Beetles) and to a lesser extent Lampyridae (Fireflies). All three families are relatively poorly represented in Australia and were once considered to be a single family, the Malacodermidae.

In Australia, Soldier Beetles occur mostly in coastal areas. They are small to medium sized (3-20 mm long), soft-bodied, elongate and usually coloured in various combinations of red, yellow, brown and bluish-black. In some species the wings and wing covers (elytra) only partially cover the abdomen and others

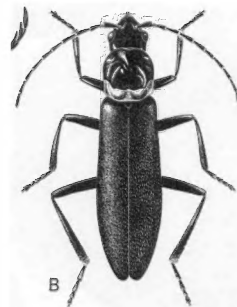


Fig. 1 - Soldier Beetle



extend the whole length (fig. 1 - after F. Nanniaga, C.S.I.R.O.).

Overseas, especially in the USA, Soldier Beetles are more in evidence and the following extract from Iowa Insect Information Service (by Donald Lewis, Department of Entomology, Iowa State University) is quite informative.

"Soldier beetles are a common outdoor insect that can be abundant accidental invaders as either larvae or adults. Soldier beetles are nicknamed leatherwings because of their soft, clothlike wing covers, which when brightly colored are reminiscent of uniforms. The beetles are elongate, soft-bodied and about 1/2" long. Colors vary from yellow to red with brown or black wings or trim. Soldier beetles resemble lightning bugs but do not have light-producing organs."

"Soldier beetle larvae are long, slender and worm-like. The sides of the body appear rippled or scalloped because of indentations within each body segment (see fig. 2). The body is covered with tiny dense bristles and appears velvety. Color is dark brown to gray. The larvae usually spend the winter in damp soil and debris or under loose bark. They are particularly abundant as accidental invaders inside the house in the fall when they are searching for protected locations in which to spend the winter."

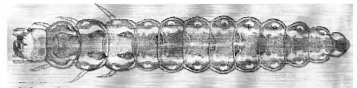


Fig 2. - Soldier Beetle larva

"Both adults and larvae are predacious and feed on other insects. The adults eat caterpillars, aphids, and other soft-bodied insects and can be important predators. As they lie in wait for prey on flowers such as goldenrod they may feed on nectar and pollen but they do no damage to the plants."

"Since soldier beetles are beneficial and harmless it is unnecessary to control them. Larvae that enter a house in the fall are only a nuisance. Entry can be prevented by weather-stripping, caulking and other measures that seal likely points of entry. Spraying of either the exterior perimeter or the interior has little if any benefit. Soldier beetles already inside the house need only be swept or picked up and discarded."

It is not known with certainty what the Australian species feed on, although there is no doubt the larvae we observed certainly ate the leaf material. Barry Moore (Fascicle No. 9 of "A Guide to the Beetles of South-eastern Australia") says - "Both adult and larval cantharids are, at least in part, predacious, but little is known of the feeding habits of the local species." Hawkeswood (Beetles of Australia, Angus & Robertson, 1987) comments "Many species feed as adults on nectar from native plants - the larvae are said to be carnivorous feeding upon smaller invertebrates."

CSIRO's authoritative Insects of Australia Volume II 1991, says in part.

"Adult cantharids are active during daylight and are sometimes found in large numbers on flowers and vegetation." (Jim's observations confirm this.) "They are known to attack other insects, but they may feed as well on pollen, nectar and fresh



foliage." "Larvae are common in soil and leaf litter where they are usually general predators. Some Holarctic species, however, are known to be phytophagous" (plant eating!), which would indicate that this may be true of at least the species we observed.

John Moss

References:

There is an informative website: <http://csironewsblog.com/2012/11/08/insect-of-the-week-the-plague-soldier-beetle-isnt-nearly-as-bad-as-it-sounds> which even has a short video clip at the end of it.

Also <http://museumvictoria.com.au/about/mv-blog/jan-2012/plague-soldier-beetles/is-enjoyable-to-read-through>, plus

http://www.brisbaneinsects.com/brisbane_beetles/PlagueSoldierBeetle.htm and

<http://australianmuseum.net.au/Plague-Soldier-Beetle>

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

Planning and General Meeting

What: A talk by John Moss on some of the insects in his extensive collection will follow our quarterly planning meeting.

When: Saturday 2nd August 2014 from 10am

Where: John's place at Capalaba – address provided on RSVP

Who: All members are welcome.

RSVP: Ross Kendall on 07 3378 1187, 0402 254 370 ross@butterflyencounters.com.au

BOIC Display at the Brisbane Exhibition

What: The club will maintain a display for the duration of the "Ekka". Apart from books and posters, we will also have "live" invertebrates and a continuous slide show.

Two members will be in constant attendance.

When: From Friday 8th August to Sunday 17th August

Where: In the Horticultural Pavilion, Brisbane Exhibition Grounds

Who: Everyone is welcome to drop by.

BOIC Display at Kumbartcho Festival

What: The club will maintain a display manned by Ross Kendall and Richard Zietek.

When: On Sunday 31st August 2014 from 10am to 3pm

Where: Kumbartcho, 15 Bunya Pine Court, Eatons Hill

Who: Members from the northside of Brisbane are especially welcome to drop by.

The Society for Growing Australian Plants Spring Flower Show

What: SGAP always has a spectacular display of native flowers and sponsor the sales of a wide range of native plants at very reasonable prices. Our club will maintain a display and have butterfly host plants for sale.

When: On Saturday October 11th and Sunday October 12th

Where: The auditorium at Mt Coot-tha Botanic Gardens

Who: All members are welcome to drop by if within range.



DISCLAIMER

The magazine seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The magazine is a platform for people, both amateur and professional, to express their views and observations about invertebrates. These are not necessarily those of the BOIC. The manuscripts are submitted for comment to entomologists or people working in the area of the topic being discussed. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGMENTS

Producing this magazine is done with the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provided the cover painting
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- Printing of this publication is proudly supported by Brisbane City Council



We would like to thank all these people for their contribution.

Dedicated to a better Brisbane

ARE YOU A MEMBER?

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Membership fees are \$30.00 for individuals, schools and organizations.** If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership number and surname e.g. **234 Roberts**.

Butterfly and Other Invertebrates Club Inc.
PO Box 2113
RUNCORN Q. 4113

Next event – Planning and General Meeting - Saturday 2nd August 2014 from 10am – See programme for details

